Chapter 4
Consumer Choice

■ Multiple Choice

1) An indifference curve represents bundles of goods that a consumer
   (a) views as equally desirable.
   (b) ranks from most preferred to least preferred.
   (c) prefers to any other bundle of goods.
   (d) All of the above.

   Answer: A
   Difficulty: 0
   Topic: Preferences
   Question Status: Revised

2) The principle that "More is better" results in indifference curves
   (a) sloping down.
   (b) not intersecting.
   (c) reflecting greater preferences the further they are from the origin.
   (d) All of the above.

   Answer: D
   Difficulty: 0
   Topic: Preferences
   Question Status: Revised

3) There is an indifference curve through every bundle because of the assumption of
   (a) transitivity.
   (b) completeness.
   (c) rationality.
   (d) nonsatiation.

   Answer: B
   Difficulty: 0
   Topic: Preferences
   Question Status: Revised

4) Indifference curves are downward sloping because of the assumption of
(a) completeness.
(b) transitivity.
(c) more is better.
(d) All of the above.

Answer: C
Difficulty: 0
Topic: Preferences
Question Status: Revised

5) If two indifference curves were to intersect at a point, this would violate the assumption of
(a) transitivity.
(b) completeness.
(c) Both A and B above.
(d) None of the above.

Answer: A
Difficulty: 0
Topic: Preferences
Question Status: Revised

6) Indifference curves that are thick violate
(a) the assumption of transitivity.
(b) the assumption that more is better.
(c) the assumption of completeness.
(d) none of the assumptions.

Answer: B
Difficulty: 0
Topic: Preferences
Question Status: Revised

7) A consumer's willingness to trade one good for another can be expressed by the consumer's
(a) indifference curve.
(b) marginal rate of substitution.
(c) Both A and B above.
(d) None of the above.

Answer: C
Difficulty: 0
Topic: Preferences
Question Status: New

8) Convexity of indifference curves implies that consumers are willing to
(a) give up more "y" to get an extra "x" the more "x" they have.
(b) give up more "y" to get an extra "x" the less "x" they have.
(c) settle for less of both "x" and "y".
(d) acquire more "x" only if they do not have to give up any "y".

Answer: B
Difficulty: 1
Topic: Preferences
Question Status: Revised

9) Measuring "y" on the vertical axis and "x" on the horizontal axis, convexity of indifference curves implies that the MRS of "y" for "x"
(a) is decreasing as "x" increases.
(b) is increasing as "x" increases.
(c) is constant as "x" increases.
(d) cannot be calculated for large levels of "x".

Answer: A
Difficulty: 1
Topic: Preferences
Question Status: Revised

10) Diminishing marginal rate of substitution can be seen when indifference curves
(a) cross.
(b) are convex.
(c) are downward sloping.
(d) become flatter as we move down and to the right.

Answer: D
Difficulty: 1
Topic: Preferences
Question Status: New

11) For which of the following pairs of goods would most people likely have convex indifference curves?
(a) nickels and dimes
(b) left shoes and right shoes
(c) movie tickets and concert tickets
(d) None of the above.

Answer: C
Difficulty: 1
Topic: Preferences
Question Status: Revised

12) If two goods are perfect substitutes, then the indifference curves for those two goods would be
(a) upward sloping and concave to the origin.
(b) downward sloping and convex to the origin.
(c) downward sloping and straight.
(d) L shaped.

Answer: C
Difficulty: 0
Topic: Preferences
Question Status: Revised

13) The indifference curves for left shoes and right shoes would most likely be
(a) upward sloping and concave to the origin.
(b) downward sloping and convex to the origin.
(c) downward sloping and straight lines.
(d) L-shaped.

Answer: D
Difficulty: 1
Topic: Preferences
Question Status: Revised

14) Utility is the set of numerical values that
(a) yields an absolute level of pleasure from a bundle of goods.
(b) reflects the relative ranking of various bundles of goods.
(c) describes how much more a consumer prefers one bundle to another.
(d) yields a cardinal ranking of bundles.

Answer: B
Difficulty: 0
Topic: Utility
Question Status: New

15) If two bundles are on the same indifference curve, then
(a) the consumer derives the same level of utility from each.
(b) the consumer derives the same level of ordinal utility from each but not the same level of cardinal utility.
(c) no comparison can be made between the two bundles since utility cannot really be measured.
(d) the MRS between the two bundles equals one.

Answer: A
Difficulty: 0
Topic: Utility
Question Status: Revised

16) If the utility function (U) between food (F) and clothing (C) can be represented as $U = \sqrt{F \times C}$, the marginal utility of food equals

(a) $\sqrt{F/C}$.

(b) $\sqrt{C/F}$.

(c) $\frac{1}{2}\sqrt{C/F}$.

(d) $\frac{1}{2}\sqrt{F/C}$.

Answer: C
Difficulty: 2
Topic: Utility
Question Status: Revised

17) If the utility function (U) between food (F) and clothing (C) can be represented as $U = \sqrt{F \times C}$, the marginal utility of food

(a) is not positive.
(b) does not diminish as food increases.
(c) is not affected by the amount clothing.
(d) increases as one obtains more clothing.

Answer: D
Difficulty: 2
Topic: Utility
Question Status: Revised

18) If the utility function (U) between food (F) and clothing (C) can be represented as $U = \sqrt{F \times C}$, the marginal rate of substitution of clothing for food equals

(a) $-C/F$

(b) $-F/C$

(c) $-\sqrt{C/F}$.

(d) $-\sqrt{F/C}$.

Answer: A
Difficulty: 2
Topic: Utility
Question Status: Revised

19) If Fred's marginal utility of pizza equals 10 and his marginal utility of salad equals 2, then

(a) he would give up 5 pizzas to get the next salad.
(b) he would give up 5 salads to get the next pizza.
(c) he will eat five times as much pizza as salad.
(d) he will eat five times as much salad as pizza.

Answer: B
Difficulty: 1
Topic: Utility
Question Status: Revised

20) If Fred's marginal rate of substitution of salad for pizza equals 5, then
(a) he would give up 5 pizzas to get the next salad.
(b) he would give up 5 salads to get the next pizza.
(c) he will eat five times as much pizza as salad.
(d) he will eat five times as much salad as pizza.

Answer: B
Difficulty: 1
Topic: Utility
Question Status: Revised

21) If Fred's marginal utility of pizza equals 10 and his marginal utility of salad equals 2, then we know that
(a) his indifference curves are convex.
(b) his indifference curves are L shaped.
(c) his indifference curves are linear.
(d) his indifference curves are downward sloping.

Answer: D
Difficulty: 1
Topic: Utility
Question Status: Revised

22) If the utility for two goods "x" and "y" is measured as $U = x + y$, then it can be concluded that
(a) "x" and "y" are perfect substitutes.
(b) "x" and "y" are perfect complements.
(c) "x" and "y" are both bads.
(d) the indifference curves on the x,y graph will be upward sloping.

Answer: A
Difficulty: 1
Topic: Utility
Question Status: Revised

23) If the utility for two goods "x" and "y" can be measured as $U = x$, then it can be concluded that
(a) "x" and "y" are perfect complements.
(b) "y" is a "bad".
(c) the indifference curves on the x,y graph are upward sloping where "x" is measured on the horizontal axis.
(d) the indifference curves on the x,y graph are vertical where "x" is measured on the horizontal axis.

Answer: D
Difficulty: 1
Topic: Utility
Question Status: Revised

24) If the utility for two goods "x" and "y" can be measured as U = y, then it can be concluded that
(a) "x" and "y" are perfect complements.
(b) "x" is a "bad".
(c) the indifference curves on the x,y graph are upward sloping where "x" is measured on the horizontal axis.
(d) the indifference curves on the x,y graph are horizontal where "x" is measured on the horizontal axis.

Answer: D
Difficulty: 2
Topic: Utility
Question Status: Revised

25) If two goods, "x" and "y", are perfect substitutes, then which of the following best represents the utility function for the two goods?
(a) $U = x + y$
(b) $U = x * y$
(c) $U = x^2 + y^2$
(d) Any of the above.

Answer: A
Difficulty: 2
Topic: Utility
Question Status: Revised

26) If Johnny likes homework (H) but hates exercise (E), which of the following might best represent his utility function for homework and exercise?
(a) $U = H + E$
(b) $U = H/E$
(c) $U = H^2 + \sqrt{E}$
(d) $U = H^2 \times \sqrt{E}$

Answer: B
Difficulty: 2
Topic: Utility
Question Status: Revised

27) Clifford lives by the motto "Eat, drink and be merry today, for tomorrow doesn't matter." If today's consumption is measured on the horizontal axis and tomorrow's consumption is measured on the vertical axis, Clifford's indifference curves
(a) are horizontal straight lines.
(b) are vertical straight lines.
(c) show decreasing utility as one moves upward.
(d) cannot be determined from the information given.

Answer: B
Difficulty: 2
Topic: Utility
Question Status: Revised

28) Clifford lives by the motto "Eat drink and be merry today, for tomorrow doesn't matter." If today's consumption is represented by "x" and tomorrow's consumption is represented by "y", then which of the following best represents Clifford's utility function?

(a) $U = x - y$

(b) $U = x/y$

(c) $U = x$

(d) $U = y$

Answer: C
Difficulty: 2
Topic: Utility
Question Status: Revised

29) Joe's income is $500, the price of food (F) is $2 per unit, and the price of shelter (S) is $100. Which of the following represents his budget constraint?

(a) $500 = 2F + 100S$

(b) $F = 250 - 50S$

(c) $S = 5 - .02F$

(d) All of the above.

Answer: D
Difficulty: 0
Topic: Budget Constraint
Question Status: Revised

30) Joe's income is $500, the price of food (F) is $2 per unit, and the price of shelter (S) is $100. Which of the following represents his marginal rate of transformation of food for shelter?

(a) −5

(b) −50

(c) −.02

(d) None of the above.

Answer: B
Difficulty: 1
Topic: Budget Constraint
Question Status: Revised

31) Joe's income is $500, the price of food (F) is $2 per unit, and the price of shelter (S) is $100. Which of the following represents his budget constraint?

(a) $500 = 100F + 2S$

(b) $500 = 2F + 100S$

(c) $S = 500 - 2F$

(d) All of the above.

Answer: B
Difficulty: 2
Topic: Budget Constraint
Question Status: Revised

32) Joe's budget constraint equals 500 = 2F + 100S, where $500 is Joe's income, $2 is the price of food (F) and $100 is the price of shelter (S). How much food can Joe buy if he buys one unit of shelter?

(a) 2 units
(b) 200 units
(c) 250 units
(d) 400 units

Answer: B
Difficulty: 1
Topic: Budget Constraint
Question Status: New

33) Joe's income is $500, the price of food (F) is $2, and the price of shelter (S) is $100. Which of the following bundles is in Joe's opportunity set?

(a) 50 units of food, 5 units of shelter
(b) 200 units of food, 2 units of shelter
(c) 100 units of food, 1 unit of shelter
(d) 150 units of food, 3 units of shelter

Answer: C
Difficulty: 1
Topic: Budget Constraint
Question Status: New

34) The marginal rate of transformation of y for x represents

(a) the slope of the budget constraint.
(b) the rate at which the consumer must give up y to get one more x.
(c) $-P_x/P_y$.
(d) All of the above.

Answer: D
Difficulty: 1
Topic: Budget Constraint
Question Status: Revised

35) The marginal rate of transformation of y for x represents

(a) the slope of the budget constraint.
(b) the rate at which the consumer must give up x to get one more y.
(c) $-P_y/P_x$.
(d) All of the above.

Answer: A
Difficulty: 1
Topic: Budget Constraint
Question Status: Revised

36) The rate at which a consumer must give up y to get one more x is equal to
(a) $-P_x/P_y$.
(b) $-P_y/P_x$.
(c) $-MU_x/MU_y$.
(d) MU_y/MU_x.

Answer: A
Difficulty: 2
Topic: Budget Constraint
Question Status: Revised

37) Betty consumes good x and good y. If the price of x = \$3 and the price of y = \$4, then
(a) an extra unit of x costs 4/3 units of y.
(b) an extra unit of y costs 4/3 units of x.
(c) an extra unit of x costs 3/4 units of y.
(d) Both B and C.

Answer: D
Difficulty: 1
Topic: Budget Constraint
Question Status: Revised

38) If the price of one good increases while the price of the other good and the consumer's income remain unchanged, what will happen to the budget line?
(a) The budget line rotates inward from the intercept on the axis of the good that did not change in price.
(b) The budget line rotates outward from the intercept on the axis of the good that did not change in price.
(c) The budget line shifts inward without a change in slope.
(d) The budget line shifts outward without a change in slope.

Answer: A
Difficulty: 1
Topic: Budget Constraint
Question Status: Revised

39) Lisa eats both pizzas and burritos. If the price of a pizza increases, Lisa's opportunity set
(a) becomes larger.
(b) becomes smaller.
(c) is unchanged.
(d) Unable to determine without more information.

Answer: B
Difficulty: 1
Topic: Budget Constraint
Question Status: Revised

40) If the consumer's income increases while the prices of both goods remain unchanged, what will happen to the budget line?

(a) The budget line rotates inward from the intercept on the horizontal axis.
(b) The budget line rotates outward from the intercept on the vertical axis.
(c) The budget line shifts inward without a change in slope.
(d) The budget line shifts outward without a change in slope.

Answer: D
Difficulty: 1
Topic: Budget Constraint
Question Status: Revised

41) If the prices of both goods and income increase by the same percentage, what will happen to the budget line?

(a) The budget line rotates inward from the intercept on the axis of the good that did not change in price.
(b) The budget line rotates outward from the intercept on the axis of the good that did not change in price.
(c) The budget line shifts outward without a change in slope.
(d) Nothing.

Answer: D
Difficulty: 1
Topic: Budget Constraint
Question Status: Revised

42) A consumer buys food (F) and shelter (S). If the consumer's income rises and there is no change in the prices of F or S, the marginal rate of transformation of F for S will

(a) increase.
(b) decrease.
(c) stay the same.
(d) change, but there is not enough information to know how.

Answer: C
Difficulty: 1
Topic: Budget Constraint
Question Status: Revised

43) If a consumer's budget line for food (F) and shelter (S) is represented as $F = 250 - 5S$, we know that

(a) the consumer's income is 250.
(b) the price of shelter is 5.
(c) the price of shelter is 5 times the price of food.
(d) All of the above.

Answer: C
Difficulty: 2
Topic: Budget Constraint
Question Status: Revised

44) Economists assume consumers select a bundle of goods that maximizes their well-being subject to
(a) their budget constraint.
(b) their income.
(c) relative prices.
(d) their marginal rate of substitution.

Answer: A
Difficulty: 0
Topic: Constrained Consumer Choice
Question Status: New

45) An optimum that occurs as a corner solution
(a) includes only one good.
(b) cannot be an equilibrium.
(c) cannot exhaust the budget constraint.
(d) includes the exact same amounts of each good.

Answer: A
Difficulty: 1
Topic: Constrained Consumer Choice
Question Status: New

46) The consumer is in equilibrium when
(a) MRT = MRS.
(b) $P_x/P_y = MU_x/MU_y$.
(c) the budget line is tangent to the indifference curve at the bundle chosen.
(d) All of the above.

Answer: D
Difficulty: 1
Topic: Constrained Consumer Choice
Question Status: Revised

47) By selecting a bundle where MRS = MRT, the consumer is
(a) achieving a corner solution.
(b) reaching the highest possible indifference curve she can afford.
(c) not behaving in an optimal way.
(d) All of the above.

Answer: B
Difficulty: 1
Topic: Constrained Consumer Choice
Question Status: Revised

48) By selecting a bundle where MRS = MRT, the consumer is saying
(a) "I value my last unit of each good equally."
(b) "I am willing to trade one good for the other at the same rate that I am required to do so."
(c) "I will equate the amounts spent on all goods consumed."
(d) All of the above.

Answer: B
Difficulty: 1
Topic: Constrained Consumer Choice
Question Status: Revised

49) With respect to consuming food and shelter, two consumers face the same prices and both claim to be in equilibrium. We therefore know that
(a) they both have the same marginal utility for food.
(b) they both have the same marginal utility for shelter.
(c) they both have the same MRS of food for shelter.
(d) All of the above.

Answer: C
Difficulty: 2
Topic: Constrained Consumer Choice
Question Status: Revised

50) Johnny has allocated $30 toward coffee and tea and feels that coffee and tea are perfect substitutes. Due to differences in caffeine levels, his MRS of tea for coffee equals 2. If coffee and tea sell for the same price, Johnny will
(a) spend all $30 on tea.
(b) spend all $30 on coffee.
(c) spend $20 on coffee and $10 on tea.
(d) be indifferent between any bundle of coffee and tea costing $30.

Answer: B
Difficulty: 2
Topic: Constrained Consumer Choice
Question Status: Revised

51) Lisa maximizes her utility by eating both pizzas and burritos. The price of a pizza is $10 and the price of a burrito is $5. When Lisa's utility is maximized,
(a) the marginal utility of pizza is larger than the marginal utility of burritos.
(b) the marginal utility of a burrito is larger than the marginal utility of a pizza.
(c) the marginal utility of both goods is the same.
(d) the good with a larger marginal utility cannot be determined without more information.

Answer: A
Difficulty: 2
Topic: Budget Constraint
Question Status: Revised

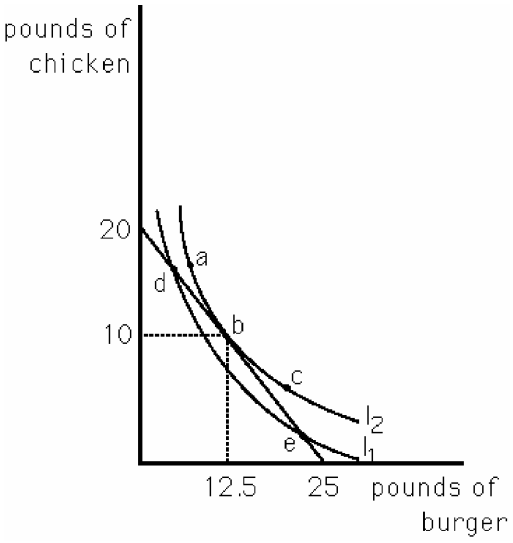

Figure 4.1

52) Max has allocated $100 toward meats for his barbecue. His budget line and an indifference map are shown in Figure 4.1. Which bundle will Max choose?

(a) a
(b) b
(c) c
(d) d

Answer: B
Difficulty: 0
Topic: Constrained Consumer Choice
Question Status: Revised

53) Max has allocated $100 toward meats for his barbecue. His budget line and an indifference map are shown in Figure 4.1. What is the price of chicken?

(a) $0.80/lb
(b) $1.25/lb
(c) $4/lb
(d) $5/lb

Answer: D
Difficulty: 1
Topic: Constrained Consumer Choice
Question Status: Revised

54) Max has allocated $100 toward meats for his barbecue. His budget line and an indifference map are shown in Figure 4.1. If the price of burger increases,

(a) Max will buy less burger and more chicken.
(b) Max will buy less burger and the same quantity of chicken.
(c) Max will buy less of both meats.
(d) More information is needed to answer the question.

Answer: D
Difficulty: 1
Topic: Constrained Consumer Choice
Question Status: Revised

55) Max has allocated $100 toward meats for his barbecue. His budget line and an indifference map are shown in Figure 4.1. What happens if Max's mother gives him 10 pounds of burger?

(a) Max would have preferred receiving the dollar value of the burger.
(b) Max is indifferent between this gift and the dollar value of the burger.
(c) Max prefers this gift to the dollar value of the burger.
(d) None of the above.

Answer: B
Difficulty: 2
Topic: Constrained Consumer Choice
Question Status: Revised

56) Max has allocated $100 toward meats for his barbecue. His budget line and an indifference map are shown in Figure 4.1. What happens if Max's mother gives him 30 pounds of burger?

(a) Max would have preferred receiving the dollar value of the burger.
(b) Max is indifferent between this gift and the dollar value of the burger.
(c) Max prefers this gift to the dollar value of the burger.
(d) None of the above.

Answer: A
Difficulty: 2
Topic: Constrained Consumer Choice
Question Status: Revised

57) Max has allocated $100 toward meats for his barbecue. His budget line and an indifference map are shown in Figure 4.1. What happens if Max receives a $100 cash grant to buy either meat or chicken?

(a) Max will double his consumption of both meats.
(b) Max will spend it all on burger. Because of its lower price, he can buy more of it.
(c) Max will take advantage of the gift by buying all chicken because it is the more expensive meat.
(d) There is not enough information to answer the question.

Answer: A
Difficulty: 2
Topic: Constrained Consumer Choice
Question Status: Revised

58) Max has allocated $100 toward meats for his barbecue. His budget line and an indifference map are shown in Figure 4.1. Which of the following best describes Max's preferences?

(a) d > b > e
(b) d = b = e
(c) a = b > c
(d) a = b > e

Answer: D
Difficulty: 1
Topic: Constrained Consumer Choice
Question Status: Revised

59) Max has allocated $100 toward meats for his barbecue. His budget line and an indifference map are shown in Figure 4.1. Which of the following bundles are in Max's opportunity set?

(a) a, b, c
(b) b, d, e
(c) a, b, d
(d) None of the above.

Answer: B
Difficulty: 1
Topic: Constrained Consumer Choice
Question Status: Revised

60) Max has allocated $100 toward meats for his barbecue. His budget line and indifference map are shown in Figure 4.1. If the price of burger increases, which of the following bundles are in Max's opportunity set?

(a) b, d, e
(b) d, e
(c) a, b, c, d, e
(d) None of the labeled points are in Max's opportunity set.

Answer: D
Difficulty: 0
Topic: Constrained Consumer Choice
Question Status: Revised

61) Cash may be preferred to food stamps because additional cash

(a) rotates the budget constraint.
(b) shifts out the budget constraint at every point.
(c) provides a smaller opportunity set.
(d) allows the purchase of more food.

Answer: B
Difficulty: 1
Topic: Constrained Consumer Choice
Question Status: New

■ True/False/Explain

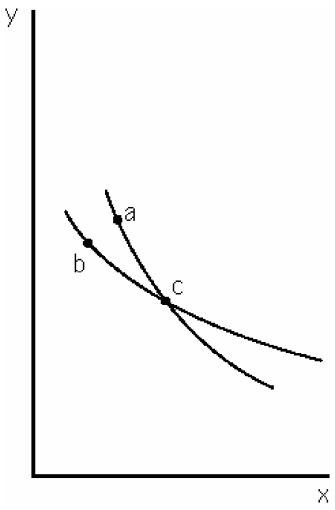

Figure 4.2

1) Indifference curves cannot intersect.

Answer: True. As seen in Figure 4.2, points a and c are on the same indifference curve and are therefore equally preferred. Points b and c are also on the same indifference curve and are therefore equally preferred. Transitivity implies that the consumer would be indifferent between a and b; however, since more is preferred to less, a is preferred to b. Thus, as a result of the assumption of transitivity and the assumption that more is preferred to less, indifference curves cannot intersect.
Difficulty: 0
Topic: Preferences
Question Status: Revised

2) Indifference curves cannot ever be concave for two goods.

Answer: False. While indifference curves are typically convex, they can be concave. This means, however, that the MRS of y for x increases as x increases. That is, the consumer places greater value on the next x the more x she has. The interpretation is that a consumer with concave indifference curves prefers to specialize in either x or y but not have a mix of both.
Difficulty: 1
Topic: Preferences
Question Status: Revised

3) Indifference curves for perfect substitutes must be parallel lines with a slope of negative one.

Answer: False. Indifference curves for perfect substitutes are parallel lines, but the slope is not necessarily negative one.
Difficulty: 1
Topic: Preferences
Question Status: New

4) Indifference curves on the same indifference map can have different shapes.

Answer: True. Indifference curves can meet all the necessary requirements and still have different shapes.
Difficulty: 1
Topic: Preferences
Question Status: New

5) The slope of the budget line represents the rate at which the consumer is willing to trade one good for another at any given bundle.

Answer: False. This describes the slope of the indifference curve. The slope of the budget line represents the rate at which the consumer must trade one good for another at any given bundle.
Difficulty: 0
Topic: Budget Constraint
Question Status: Revised

6) Consumers do not prefer gifts-in-kind to cash gifts.

Answer: True. It is possible the consumer would buy the same gift with cash and therefore be just as well off. If the consumer bought something other than the gift, that means that this something else is preferred to the gift. At best, the gift yields the same utility as would have been achieved with the cash, but never more.
Difficulty: 1
Topic: Consumer's Constrained Choice
Question Status: Revised

7) If MRS > MRT, then the consumer is better off than at equilibrium.

Answer: False. MRS > MRT implies that the consumer values the next unit of "x" more than it costs to obtain it. That is, there is a gain from trade to be made. As more "x" is purchased, MRS falls and eventually MRS = MRT. At this point, all gains from trade have been made.
Difficulty: 1
Topic: Constrained Consumer Choice
Question Status: Revised

■ Problems

1) Lisa views pizzas and burritos as goods. If she prefers a bundle of 4 burritos and 4 pizzas to a bundle of 4 burritos and 5 pizzas, which property of consumer preference is violated? What change in the assumptions could lead a rational consumer to prefer the first bundle?

Answer: The property of more-is-better is violated. However, if pizza is a bad, then a rational consumer would prefer the first bundle.
Difficulty: 1
Topic: Preferences
Question Status: Revised

2) Explain why most indifference curves are convex.

Answer: Diminishing marginal rates of substitution make most indifference curves convex. When people have a lot of one good, they are willing to give up a relatively larger amount of it to get a good of which they have relatively little.
Difficulty: 1
Topic: Preferences
Question Status: New

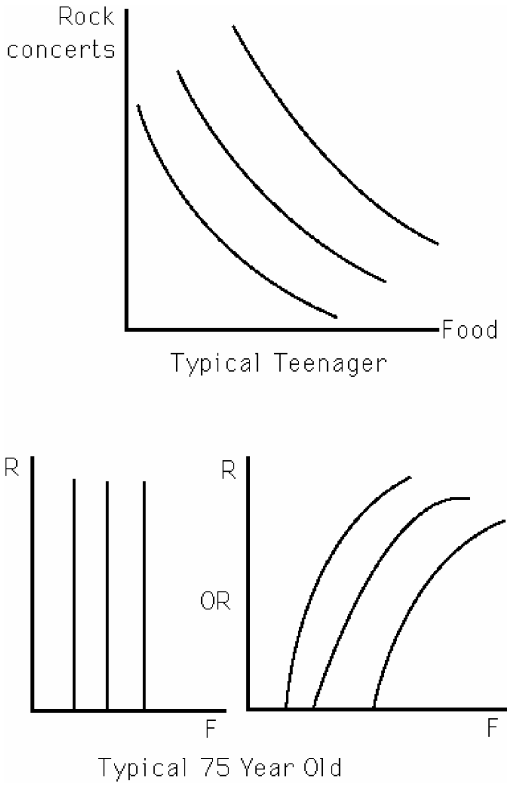

Figure 4.3

3) Draw the indifference curves for rock concerts and food for each of the following:

(a) a typical 17-year-old
(b) a typical 75-year-old

Answer: See Figure 4.3. These graphs assume that a typical 17-year-old would enjoy both food and rock concerts. The 75-year-old might find the rock concerts neutral or even bad.
Difficulty: 1
Topic: Preferences
Question Status: Revised

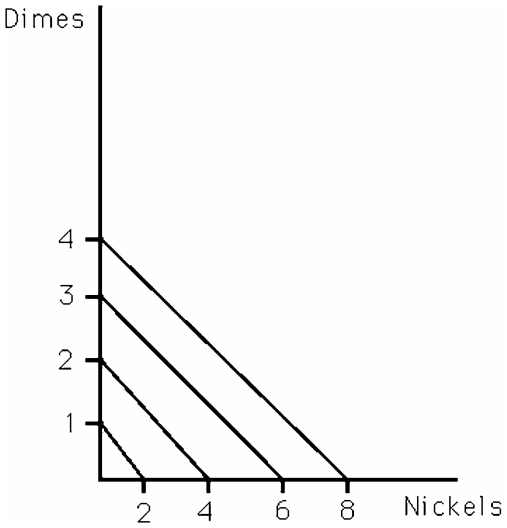

Figure 4.4

4) Draw the indifference curves for nickels and dimes. Would they ever have a non-constant slope? Explain.

Answer: See Figure 4.4. Two nickels are worth 1 dime. Yet, for extremely large amounts of money, people might prefer dimes to nickels for carrying purposes. That is why people often pay with exact change or don't like to break a twenty.

Difficulty: 1

Topic: Preferences

Question Status: Revised

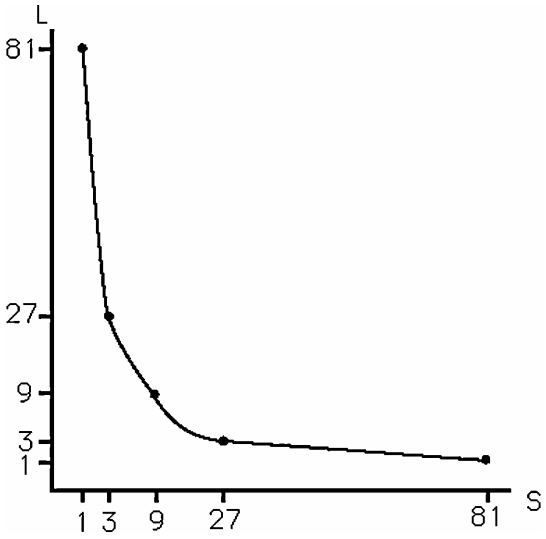

Figure 4.5

5) Suppose Joe's utility for lobster (L) and soda (S) can be represented as U = L0.5 S0.5. Draw the indifference curve that yields a utility level of 9. Calculate the MUL, MUS, and MRS of L for S on that indifference curve when S = 3.

Answer: See Figure 4.5. Along that indifference curve, when:
S = 3, L = 27. $MU_L = 0.5 * (S/L)^{0.5} = 1/6$.
$MU_S = 0.5 * (L/S)^{0.5} = 1.5$.
$MRS = -MU_S/MU_L = -9$.
Joe is willing to give up 9 lobsters to get another soda.
Difficulty: 2
Topic: Utility
Question Status: Revised

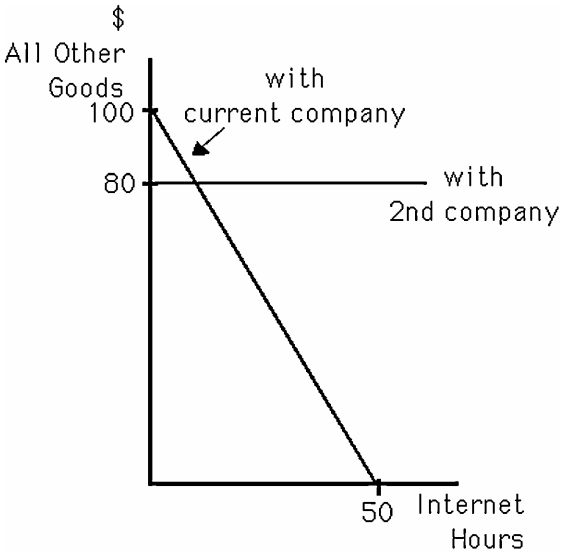

Figure 4.6

6) Joe subscribes to an Internet provider that charges $2 per hour. Draw his budget line for Internet access on the horizontal axis and money spent on all other goods on the vertical axis assuming he has $100 per month to spend. Another company offers unlimited Internet access for a flat monthly fee of $20. Draw this budget line.

Answer: See Figure 4.6.
Difficulty: 1
Topic: Budget Constraint
Question Status: Revised

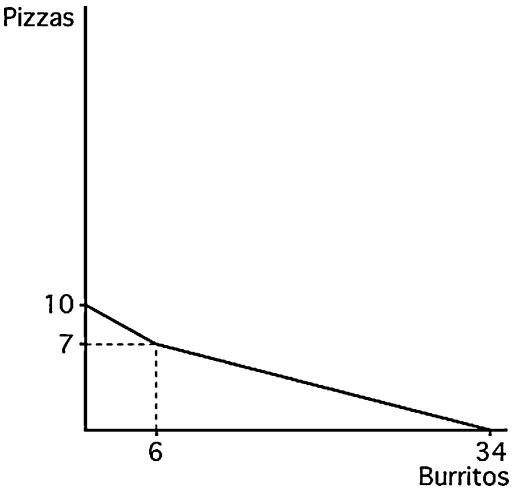

Figure 4.7

7) Lisa has an income of $100. She spends all of her income on pizza and burritos. A pizza costs $10 and a burrito costs $5. However, the store where Lisa buys her burritos has a special deal. After you've bought 6 burritos, then you can buy each burrito for $2.50. Draw Lisa's opportunity set.

Answer: See Figure 4.7.
Difficulty: 1
Topic: Budget Constraint
Question Status: Revised

8) Explain the difference between the marginal rate of substitution and the marginal rate of transformation.

Answer: The marginal rate of substitution is a consumer's willingness to trade one good for another based on utility. The marginal rate of transformation is the consumer's ability to trade one good for another based on prices.
Difficulty: 1
Topic: Budget Constraint
Question Status: New

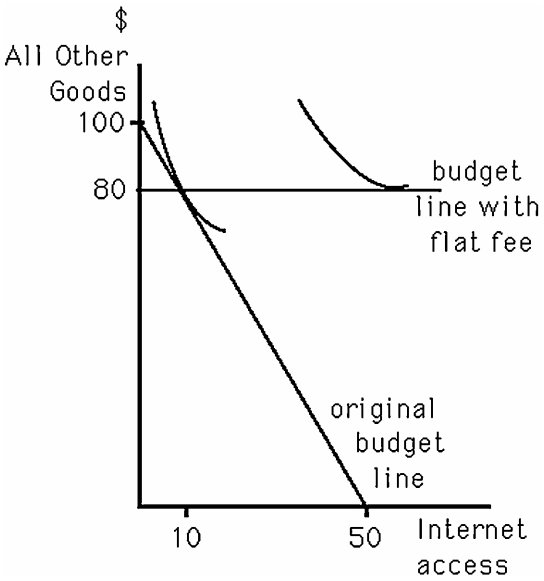

Figure 4.8

9) Joe subscribes to an Internet provider that charges $2 per hour. He has $100 per month to spend and is at equilibrium by buying 10 hours of Internet access and $80 worth of other goods. Draw the indifference curve and budget line. If the company switches to a $20 monthly fee for unlimited Internet access, is Joe better off?

Answer: See Figure 4.8. Under the new plan Joe can still purchase his original bundle and get additional time on the Internet for free. Note that had Joe been consuming less than 10 hours at $2 per hour, the new pricing policy would leave him worse off.
Difficulty: 2
Topic: Constrained Consumer Choice
Question Status: Revised

10) Suppose Joe's utility for lobster (L) and soda (S) can be represented as $U = L^{0.5} S^{0.5}$. Joe walks into a restaurant with $72. Lobsters cost $18 each and sodas cost $2 each. How much lobster and soda will Joe consume if he intends to spend all his money? (There are no tax and no tips.)

Answer: Maximizing Joe's utility subject to his budget constraint yields:
$U = L^{0.5} S^{0.5} + l(72 - 18L - 2S)$

1. $dU/dL = 0.5 L^{-0.5} S^{0.5} - l18 = 0$
2. $dU/dL = 0.5 L^{0.5} S^{-0.5} - l2 = 0$
3. $dU/dl = 72 - 18L - 2S = 0$

From 1) and 2), $S/L = 9$ or $S = 9L$. Substituting into 3) yields $72 - 36L = 0$ or $L = 2$.
Since $S = 9L$, $S = 18$. Thus, Joe will buy 2 lobsters and wash it all down with 18 sodas.
Difficulty: 2
Topic: Constrained Consumer Choice
Question Status: Revised

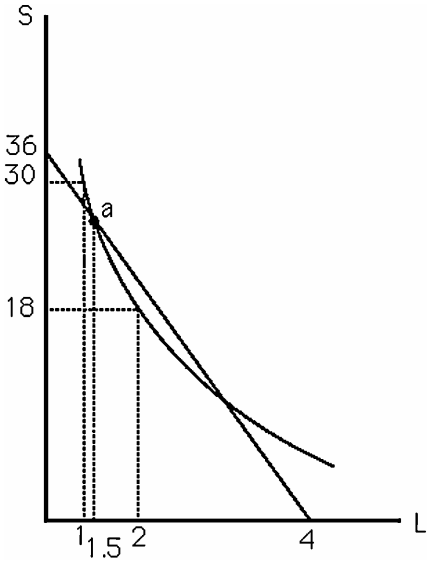

Figure 4.9

11) Joe's indifference map for lobster and soda is shown in Figure 4.9 along with his budget line. Will Joe choose point a? Explain your answer in terms both of MRS and the level of utility.

Answer: Joe will not choose point a. Since the slope of his budget line tells us that he must give up only 9 sodas to get a lobster, Joe will wish to buy more lobsters and less soda than bundle a provides. From a utility standpoint, Joe will not choose point a because another bundle that lies on a higher indifference curve is obtainable.

Difficulty: 2

Topic: Constrained Consumer Choice

Question Status: Revised

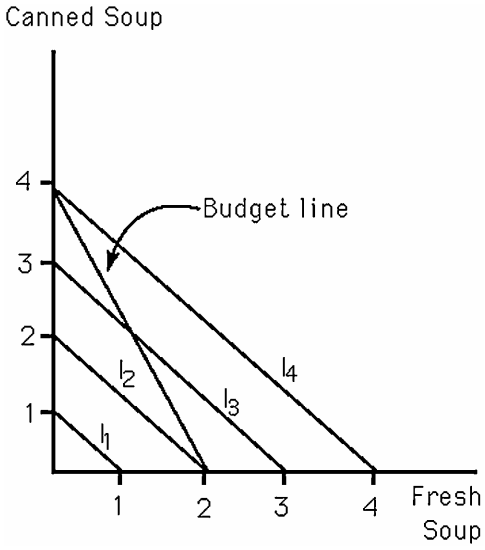

Figure 4.10

12) John is indifferent between canned soup and fresh soup. Canned soup sells for $1 per serving and fresh soup sells for $2 per serving. Assuming that John has allocated $4 toward soup, how will he spend it? Explain your answer by drawing John's budget line and indifference curves.

Answer: See Figure 4.10. Canned and fresh soups are perfect substitutes. A corner solution exists where John spends all $4 on canned soup.
Difficulty: 2
Topic: Constrained Consumer Choice
Question Status: Revised

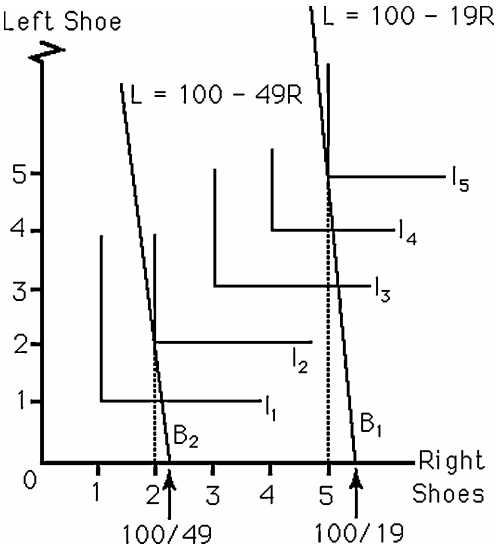

Figure 4.11

13) Suppose that left shoes and right shoes must be purchased separately. Ingrid needs an equal number of each type of shoe and has a budget of $100 for shoes. Left shoes always cost $1. If right shoes cost $19 each, how many of each will Ingrid buy? If the price of right shoes increases to $49 each, how will Ingrid react? Explain your answer by drawing the indifference curves and budget lines.

Answer: See Figure 4.11. Since Ingrid needs an equal number of each type of shoe, left shoes and right shoes are perfect complements. If right shoes are $19 each, Ingrid purchases 5 pairs of shoes. If right shoes are $49 each, Ingrid purchases 2 pairs.

Difficulty: 2

Topic: Constrained Consumer Choice

Question Status: Revised

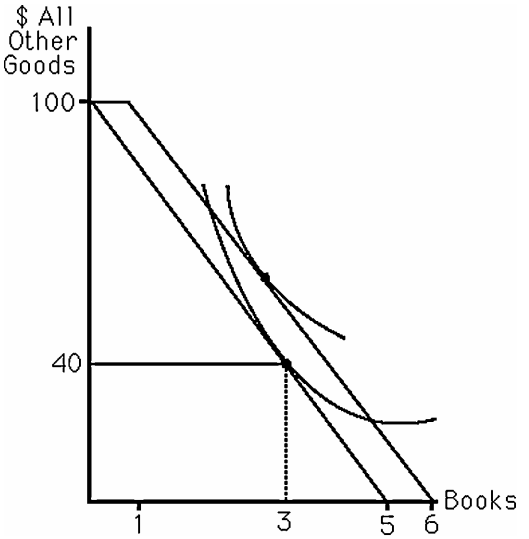

Figure 4.12

14) Johnny has $100 to spend on books and all other goods. Books cost $20 each and Johnny is at equilibrium consuming 3 books and $40 worth of other goods. Johnny's grandmom wants to give Johnny either a book or $20 for his birthday. Which gift does Johnny prefer? Explain using an indifference map and budget lines.

Answer: See Figure 4.12. Since Johnny's equilibrium book consumption exceeds the quantity of books in the gift-in-kind, Johnny is indifferent between receiving the book or the cash. Had Johnny been consuming less than one book, he would have preferred the cash.

Difficulty: 2

Topic: Constrained Consumer Choice

Question Status: Revised

15) Lisa consumes only pizzas (P) and burritos (B). Her utility function is $U = P^{0.5}B^{0.5}$. The price of per pizza is $10 and the price per burrito is $5. In equilibrium, Lisa consumes 4 pizzas. Using Lisa's utility function, calculate how many burritos she consumes.

Answer: The marginal utility of pizza equals $B^{0.5}/2P^{0.5}$. The marginal utility of a burrito equals $P^{0.5}/2B^{0.5}$. In equilibrium, the ratio of the marginal utilities will equal the ratio of prices. The ratio of marginal utilities simplifies to B/P. The ratio of prices is 10/5. Since we know that Lisa consumes 4 pizzas, she must consume 8 burritos.

Difficulty: 2

Topic: Constrained Consumer Choice

Question Status: Revised

16) Lisa consumes only pizzas and burritos. In equilibrium, her marginal utility of pizza is 20 and her marginal utility of a burrito is 10. The price of a pizza is $4. What is the price of a burrito?

Answer: In equilibrium, the ratio of the marginal utility of a pizza divided by the price of a pizza must equal the marginal utility of a burrito divided by the price of a burrito. Thus, the price of a burrito must be $2.

Difficulty: 1

Topic: Constrained Consumer Choice

Question Status: Revised